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CASE REPORT

Successful treatment of superficial basal cell carcinoma in the central face by photodynamic therapy in an Asian woman with dermoscopic diagnosis and a serial follow-up

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ABSTRACT

Superficial basal cell carcinoma and tinea nigra sometimes share similar clinical manifestations. Herein, we report the case of a 56-year-old Asian woman with superficial basal cell carcinoma located on her philtrum, which was initially misdiagnosed as tinea nigra. We also describe the different distinguishing features of this lesion under dermoscopic examination to improve the diagnostic accuracy. Because of the relatively low rate of metastasis and less aggressive nature of a superficial basal cell carcinoma, cosmetic concerns should be taken into consideration in planning treatment. In this case, the patient received photodynamic therapy that yielded an excellent clinical response over a 9-months follow-up.

Introduction

Each type of pigmented skin disease has different distinguishable features under dermoscopic examination. In this paper, we report the dermoscopic findings of superficial basal cell carcinoma in order to improve the diagnostic accuracy. Furthermore, we provide a series of clinical pictures and dermoscopic figures after photodynamic therapy. In our experience, photodynamic therapy offers significant cosmetic advantages over surgical or other options, which may lead to potentially destructive outcomes. Our case demonstrates the success of photodynamic therapy, a viable treatment option that does not compromise the cosmetic outcome or produce any noticeable side effects, which can be applied in the future.

Case report

A 56-year-old Asian woman came to our clinic with a well demarcated, erythematous to brownish patch on her philtrum for one year. The patient had been treated at a local clinic under the diagnosis of tinea nigra for 6 months without efficacy. On examination, the brownish macule was 1.4 × 0.8-cm in size with some blackish dots and fine scales (Figure 1A). Further dermoscopic examinations revealed a light brown, structureless area with focal, shiny white to red parts, some peripheral brown dots, spoke-wheel areas, leaf-like structure, telangiectasia, and arborizing vessels suggesting basal cell carcinoma (Figures 1B–D). Therefore, we performed a skin biopsy and confirmed the diagnosis. Given the postoperative cosmetic concerns, the patient received methyl-aminolevulinate–based photodynamic therapy (MAL-PDT). We applied a 1-mm–thick layer of MAL cream (Metvix 160 mg/g, Galderma, Australia) on the lesion and 5 mm into the surrounding margins. The area was then covered with an occlusive, nonabsorbent dressing and aluminum foil for 3 consecutive hours. The skin lesion was then put under noncoherent red light (LED, Aktilite CL 16, wavelength 630 nm, Photocure ASA, Oslo, Norway) and administered a total dose of 37 J/cm^2. The patient only received one session of MAL-PDT. Subsequent to the treatment, the patient exhibited crusting and transient erythema on and around the treated area, which receded spontaneously after 5 days (Figure 2A). The brownish macule gradually subsided in the following days with mild skin atrophy, but there was no significant scarring or disfigurement. After a 9-month follow-up, we did not discover any evidence of tumor recurrence, residual erythema, or pigmentation (Figures 2B and 2D).

Discussion

We report a case of superficial basal cell carcinoma on the central face, which had initially been misdiagnosed as tinea nigra. Superficial basal cell carcinoma can be mistaken for other pigmented macules, and clinical diagnosis may not always be easy. In such

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Figure 1 (A) Oval-shaped erythematous to brownish macule with peripheral blackish dots. (B) Dermoscopic pictures revealed a light brown structureless architecture with shiny white to red area and some spoke-wheel pigmentation. (C) Leaf-like structure. (D) Telangiectasia and arborizing vessels. The above findings were in favor of a basal cell carcinoma.

situations, dermoscopic examination can improve the diagnostic accuracy. For example, tinea nigra shows a homogeneous non-melanocytic pigmented pattern with superficially fine, wispy lightly brownish strands or spicules that do not follow the dermatoglyphic lines in the irregular macule.[1,2] In contrast, the dermoscopic findings of superficial basal cell carcinoma are quite different. Scalvenzi et al[3] analyzed the dermoscopic features observed in 42 cases of superficial basal cell carcinoma. Their studies identified the presence of: (i) shiny white to red areas (100%), (ii) erosion (78.6%), and (iii) short fine telangiectasia (66.6%) as the main dermoscopic criteria. Other dermoscopic features, such as, leaf-like areas, arborizing telangiectasia, and blue-gray ovoid nests are not strongly associated with the diagnosis of superficial basal cell carcinoma. However, these features are useful to differentiate it from other pigmented and nonpigmented skin lesions. In the instance of non-pigmented basal cell carcinoma, the recognition of vascular structures such as arborizing vessels can been applied for diagnostic purposes in dermoscopic evaluation.[10] Although this vascular structure had less diagnostic value for Asian groups than in white patients, they can be used as clues for tumor recurrence.

A surgical approach to the treatment of basal cell carcinoma that is located in the center of the face tends to be more difficult than for those in other sites. The philtrum is a particularly difficult area in which to achieve a satisfactory cosmetic and functional surgical repair of basal cell carcinomas, as we noted in our case. The therapeutic objective is to excise the clinically apparent tumor with a margin of clinically normal-appearing skin and gain excellent cosmetic results with minimal distortion of the vermilion border or obliteration of the philtrum ridges. In this instance, photodynamic therapy was the treatment of choice. Photodynamic therapy involves the activation of a photosensitizer with visible lighting so as to create cytotoxic oxygen species and free radicals in order to selectively destroy rapidly proliferating cells.[4,5] The advantages of photodynamic therapy are the capacity for noninvasive targeted treatment and excellent cosmetic outcome. Tierney et al[6] used photodynamic therapy in the treatment of superficial basal cell carcinoma and achieved overall clearance rates ranging from 72% to 94%. Vinciullo et al[7] performed a prospective multicenter efficacy study to evaluate the efficacy and safety of photodynamic therapy for basal cell carcinoma defined as “difficult to treat” (large lesions, in the H-zone, or in patients at high risk of surgical complications); and the complete response rate was 89% (complete response was defined as complete disappearance of all lesions, assessed visually and by palpation, as confirmed according to histology). Horn et al[8] performed a similar open label multicenter study in Australia. The 3-month complete response rate for lesions was 80%, and long-term follow-up at 60 months revealed a recurrence rate of 38%. In summary, because of the relatively low rate of metastasis and less aggressive nature of superficial basal cell carcinoma, issues such as cosmetic concerns should be taken into account while attempting to select a proper treatment for any given patient.[9] On the basis of our experience, photodynamic therapy of superficial basal cell carcinoma is a highly effective and convenient therapy. After a single treatment, 85% basal cell carcinomas showed a complete response at a follow-up time of at least 6 months.[11] Our case demonstrated an excellent outcome after one session of methyl-aminolevulinate–based photodynamic therapy with no discernible sign of tumor recurrence during a 9-month follow-up.

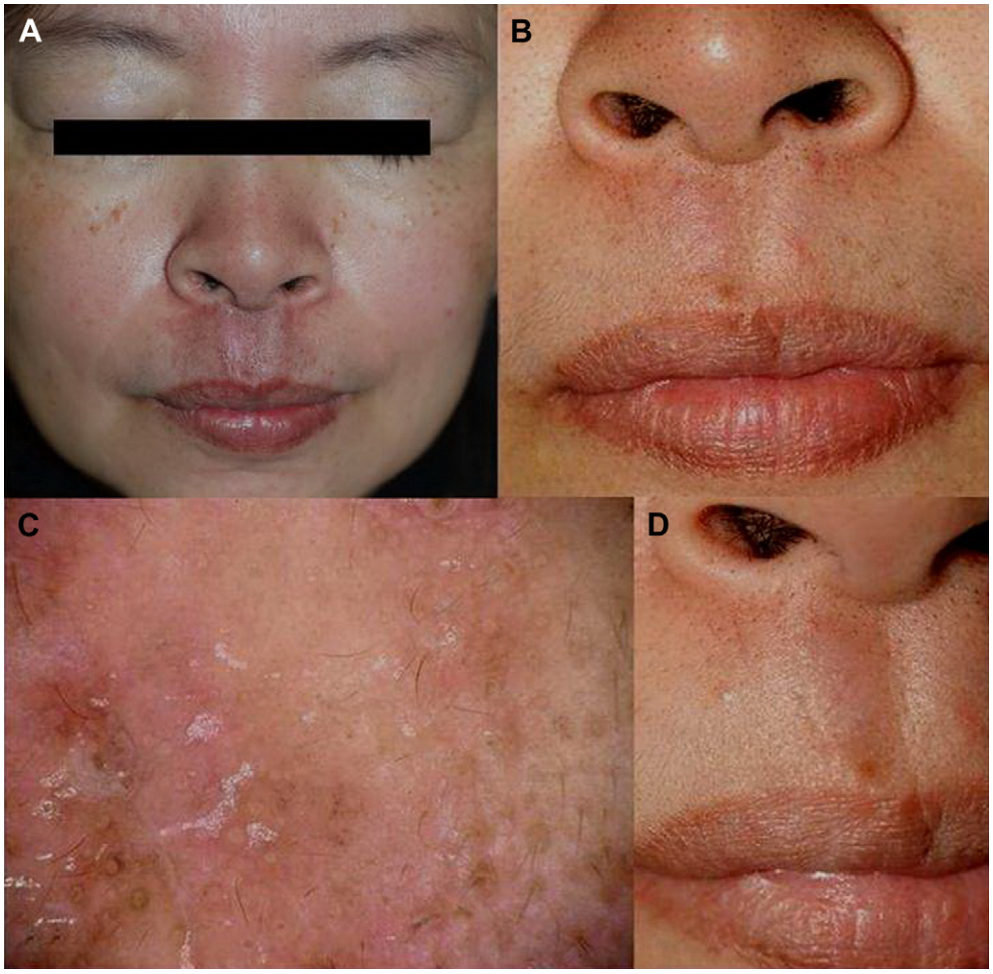

Figure 2 (A) One week after methyl-aminolevulinate-based-photodynamic therapy (MAL-PDT) revealed mild erythema and focal crusting. (C) Dermoscopic finding, 1 week later after MAL-PDT, the previous leaf-like area, telangiectasia, and arborizing vessels vanish, remaining faint white to red areas. (B and D) Nine-months follow-up revealed mild pinkish erythema with slight skin atrophy. (D) Close view.

The series of dermoscopic examinations we described can also be used during follow-up examinations for tumor recurrence in order to prevent unnecessary surgical biopsy and subsequent scar formation.

Very few reports in the literature today discuss the above problems with Asian patients in mind; one goal of this paper is to serve this particular community. We suggest more studies to be devoted to this field so that more patients, especially those with Asian backgrounds, can benefit in the short run.

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